Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of A National Broadband Plan for Our Future	))))))	 GN Docket No. 09-51

To: Wireline Competition Bureau and Wireless Telecommunications Bureau

JOINT COMMENTS OF THE NATIONAL RURAL TELECOMMUNICATONS COOPERATIVE AND DIGITALBRIDGE COMMUNICATIONS CORP.

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EXECUTIVE SUMMARY

Broadband connectivity is a vital part of everyday American life. As new technologies, greater capacity and faster speeds materialize, those with broadband access enjoy and benefit from new economic opportunities, educational programs and life-saving medical and public safety applications. But these advancements are not available to everyone today, and are emerging much more slowly, if at all, in the more remote and rural areas of our nation. As the Commission acknowledged in its *Notice of Inquiry* for this proceeding, "the Internet has transformed the way *those who have access to it* live their lives." While rural telephone cooperatives and independents have made great strides in expanding the reach of DSL and fiber connectivity in their markets, numerous studies have shown that many rural Americans continue to lag behind urban and suburban consumers in having broadband at home and, consequently, in experiencing the transformative power of the Internet. A story in yesterday's USA Today made the point most aptly, "Just because we live in rural America doesn't mean we shouldn't have broadband" said Jeff Roper, a third-generation peanut farmer. "We are all Americans. We shouldn't be treated less than anyone else."

The National Rural Telecommunications Cooperative ("NRTC") and DigitalBridge Communications Corp. ("DBC") are committed to extending broadband opportunity to remote and rural populations and are pleased to jointly comment to the Commission on its national broadband plan. As the Commission rightly suggests, any national plan must "open the doors of opportunity for more Americans no matter who they are, [or] where they live... ." DBC and NRTC believe that the natural starting point of any national broadband plan must be to focus on the most in-need populations first, especially in rural communities.

As NRTC and DBC made clear in prior filings to the FCC, NTIA and RUS, they have a plan to bring robust, affordable, reliable, sustainable, scalable and upgradeable wireless broadband

services to some of the neediest communities across our nation, but the support of our government is needed to make it happen. First, the impediments to bringing broadband to rural, remote and disadvantaged populations are predominantly financial. The financial support of our government, as found in existing loan and grant programs, stimulus dollars, and universal service support mechanisms, forms a good start, but more funding, and the right funding, likely will be needed to ensure sustainable universal broadband access.

Second, in answer to the Commission's question about which technologies might work best for specific kinds of deployments, the Commission should note from the numerous comments filed with respect to Rural Broadband Strategy, that wireless broadband is one of the quickest, most cost-efficient, most future-proofed solutions for bringing quality broadband to rural areas. Critical support from our government is needed to encourage and enable wireless broadband deployments, including policies and mechanisms that support making spectrum, middle-mile access, infrastructure, and consumer equipment available.

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Broadband connectivity is a vital part of everyday American life. As new technologies, greater capacity and faster speeds materialize, those with broadband access enjoy and benefit from new economic opportunities, educational programs and life-saving medical and public safety applications. But these advancements are not available to everyone today, and are emerging much more slowly, and in some cases not at all, in the more remote and rural areas of our nation. As the Federal Communications Commission ("FCC" or "Commission") acknowledged in its *Notice of Inquiry* for this proceeding ("*NOI*"),[1] "the Internet has transformed the way *those who have access to it* live their lives."[2] Unfortunately, as numerous studies have shown, rural Americans continue to lag behind urban and suburban consumers in having broadband at home and, consequently, in experiencing the transformative power of the Internet.[3] A story in yesterday's USA Today made the point most aptly, "Just because we live in rural America doesn't mean we shouldn't have

[1] *See National Broadband Plan for Our Future*, Notice of Inquiry, 24 FCC Rcd 4342 (2009) ("*NOI*").

[2] *NOI* ¶ 2 (*emphasis* added).

[3] The Pew Study reflects that while urban and suburban users have broadband at home at rates of 57 percent and 60 percent, respectively, only 38 percent of rural users have broadband at home. *See* Pew Internet and American Life Project, *Home Broadband Adoption 2008* (July 2008) available at http://www.pewinternet.org/Reports/2008/Home-Broadband-2008.aspx ("Pew Study").

broadband" said Jeff Roper, a third-generation peanut farmer.[4] "We are all Americans. We shouldn't be treated less than anyone else."[5]

The National Rural Telecommunications Cooperative ("NRTC") and DigitalBridge Communications Corp. ("DBC") are committed to extending broadband opportunity to remote and rural populations and are pleased to jointly comment to the Commission on its national broadband plan. As the Commission rightly suggests, any national plan must "open the doors of opportunity for more Americans no matter who they are, [or] where they live... ."[6] DBC and NRTC believe that the natural starting point of any national broadband plan must be to focus on the most in-need populations first, especially in rural communities.

As NRTC and DBC made clear in prior filings to the FCC, the National Information and Telecommunications Administration ("NTIA") and the Rural Utilities Service ("RUS"), they have a plan to bring robust, affordable, reliable, sustainable, scalable and upgradeable wireless broadband services to some of the neediest communities across our nation, but the support of our government is needed to make it happen. First, the impediments to bringing broadband to rural, remote and disadvantaged populations are predominantly financial. The financial support of our government, as found in existing loan and grant programs, stimulus dollars, and universal service, forms a good start, but more funding, and the right funding, likely will be needed to ensure sustainable universal broadband access.

Second, in answer to the Commission's question about which technologies might work best for specific kinds of deployments, the Commission should note from the numerous comments filed

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[4] Leslie Cauley, *Rural Americans Long to be Linked*, USA Today, June 7, 2009, www.usatoday.com/tech/news/2009-06-07-rural-broadband-digital_N.htm.

[5] *Id.*

[6] *NOI* ¶ 1.

with respect to Rural Broadband Strategy, that wireless broadband is one of the quickest, most cost-efficient, most future-proofed solutions for bringing quality broadband to rural areas. Critical support from our government is needed to encourage and enable wireless broadband deployments, including policies and mechanisms that support making spectrum, middle-mile access, infrastructure, and consumer equipment available.

I. NRTC AND DBC ARE COMMITTED TO BRINGING VITAL COMMUNICATIONS SERVICES TO RURAL AREAS AND HAVE JOINED FORCES TO EXPEDITE BROADBAND DELIVERY TO SOME OF THE MOST NEEDY COMMUNITIES.

A. NRTC.

NRTC is a non-profit cooperative[7] that has provided advanced telecommunications services and technology to rural America since 1986. NRTC's mission is to lead and support its rural utility cooperative members by delivering telecommunications solutions to strengthen member businesses, promote economic development, and improve the quality of life in rural America.[8] NRTC provides advanced telecommunications and information technology and services to more than 1,400 rural utilities and affiliates in 48 states.[9] NRTC member electric and telephone cooperatives have, in most cases, served their communities for over half a century, delivering critical utility services and infrastructure projects to rural America. Throughout many communities in rural America, broadband deployments to the neediest populations have been undertaken by small cooperative and independent telephone companies, many of which are members of NRTC. Rural electric cooperatives in the United States, including NRTC's 808 rural electric members, serve more than 40

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[7] NRTC and its member cooperatives are not-for-profit entities that are owned by the community of members they serve. As a Subchapter-T organization under the United States Tax Code, NRTC returns any net margin (i.e., profits) to its members in the form of cash and equity patronage. NRTC was created to serve its members and bring advanced telecom to rural America on this non-profit basis.

[8] NRTC was created by the National Rural Electric Cooperative Association (NRECA) and the National Rural Utility Cooperative Finance Corporation to find, commercialize and deliver advanced telecommunications and technological innovations to the family of rural cooperatives.

[9] Of those members, 480 are local independent or cooperative telephone companies and 808 are electric cooperatives.

million customers spread over more than 80 percent of the landmass of the United States. NRTC's 481 independent and cooperative telephone systems serve less than 5% of the nation's telephone subscribers, but their service areas encompass more than 40% of the nation's land mass. Rural telcos provide efficient, technologically advanced telecommunications while, in some cases, serving as few as one person per 5 or even 10 line miles. Bell operating companies, by contrast, serve on average 130 customers per line mile. Often, NRTC members are their community's largest employer, with many of those jobs created by RUS-backed projects.

A key goal of NRTC and its member cooperatives is to close the urban-rural gap, allowing Americans living in small towns, on farms and ranches, and in the most remote reaches of our nation to enjoy the same electric, phone, television and other essential technologies – including broadband – as are enjoyed by those in urban settings. As described below, NRTC has been involved in delivering subscription television services, wireless voice, satellite broadband, smart grid technologies, and a host of other leading-edge technologies to rural America:

- C-Band Satellite: NRTC was the first independent (i.e., non-programmer affiliated) packager of television services in the C-band direct-to-home television industry and, with the help of the Congress and the Commission, led the effort to gain access to programming for delivery technologies competing with cable. At that time, C-band was the only method of delivering a full line-up of cable programming to the most remote and unserved areas of the nation.
- DirecTV: As satellite television technology evolved, in 1994 NRTC provided significant financial support to Hughes Communications, a wholly-owned subsidiary of General Motors, enabling the launch of DIRECTV with capital raised from NRTC members. NRTC members then led the rollout and distribution of that service, eventually becoming the largest distributor of DIRECTV with nearly 2 million customers in rural and underserved markets.
- Internet Access: Early in the Internet boom of the 1990's NRTC became an Internet Service Provider ("ISP") for its members, providing e-mail and Internet access through dial-up, cable, DSL and Wireless ISPs. Today, NRTC provides ISP services to over 200,000 customers through some 300 NRTC cooperatives.
- IPTV: In 2007, the video business of NRTC again evolved as the cooperative began distributing over 300 channels of cable programming to rural markets in Internet protocol television ("IPTV") format with MPEG-4 compression. NRTC was among the first – if not *the* first – to offer this technology in the United States. Through IPTV / MPEG-4, NRTC's

telephone cooperative members are able to deliver a full lineup of video, including high-definition, over copper phone lines.

- Smart Grid: NRTC also is a supplier of advanced smart grid equipment. For many years, NRTC has supplied its members and their customers in rural America with a wide range of energy-efficient technologies, such as advanced metering infrastructure (AMI), SCADA, and demand-response equipment. NRTC provides wireless and satellite connectivity for voice and data communications for electric utilities. Through the addition of WiMAX or satellite broadband, NRTC can provide its electric cooperative members with next generation communications services that can enable and enhance Smart Grid initiatives.
- Satellite Broadband: In recent years, NRTC has been a pioneer in the delivery of broadband via satellite to bring faster Internet service to rural Americans, many of whom had no access other than dial-up service. NRTC began with one-way satellite Internet service and then piloted two-way satellite systems with StarBand and HughesNet. In April 2003, NRTC joined with Liberty Satellite, LLC and Intelsat USA Sales Corporation investing in and launching WildBlue Communications, Inc. ("WildBlue"), a Ka-band DOCSIS-based satellite licensee offering two-way high-speed Internet access targeted to rural areas lacking alternative access resources.[10] WildBlue launched service in 2005 and today it serves over 340,000 homes and businesses, of which about 82,000 are served by NRTC members.

Today, in keeping with its charter to find advanced communications innovations for its rural cooperatives, NRTC is partnering with DBC, a young but successful WiMAX provider, to bring fixed and mobile wireless broadband technology to areas that are without broadband or competitive choice. NRTC, its members, and DBC have joined together to add WiMAX technology to the considerable foundation already possessed by NRTC members in their rural communities, including local community relationships, awareness of local community needs, local mounting assets, backhaul networks, and deployed fiber. Adding fixed and mobile WiMAX to this foundation, with the help and support of stimulus dollars, will quickly and cost-efficiently bring robust wireless broadband services where it is needed. For customers who cannot feasibly be reached by WiMAX, the satellite

[10] WildBlue currently offers its Ka-band satellite broadband service from two satellites: Anik-F2 satellite located at 111.1° W.L. and WildBlue 1 at 109.2° W.L.

broadband services of NRTC partner WildBlue will be available to ensure virtually universal coverage of all rural America.[11]

B. DBC.

Like NRTC, DBC knows first-hand the challenges and opportunities of bringing meaningful broadband to rural communities and the difference it makes in the lives of rural consumers. DBC's primary mission is to bring affordable broadband to rural, remote, unserved and underserved communities. Today, under the name BridgeMAXX, DBC provides wireless broadband service to 15 underserved and rural communities, covering 600,000 people, using fixed and mobile WiMAX technology.[12] DBC is able to rapidly and affordably bring next-generation broadband services to these markets, typically within 6-9 months of funding, due to a number of DBC advantages, including: (1) readily-deployable WiMAX technology; (2) experienced deployment teams and capabilities; (3) a state-of-the-art, national Network Operations Center located in Ashburn, VA; (4) scalable billing and customer care systems capable of serving over 1 million customers; (5) an open, all-IP network costing a fraction of traditional networks; (6) a deep licensed spectrum position which allows fast, reliable, sustainable, secure and interference-free operations; and (6) a solid operating record and seasoned management team that has worked together for 12 years.

DBC is the largest private WiMAX operator in the United States, targeting third-tier and smaller markets, with populations as small as 2,000 people. In June 2007, DBC launched the first, standards-based commercial WiMAX system in the United States in Rexburg, Idaho.[13] In June 2008

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[11] NRTC also will join in Comments submitted by WildBlue Communications. NRTC believes that satellite broadband is a critical component of ubiquitous national broadband service.

[12] BridgeMAXX service is available in Idaho Falls, ID, Pocatello, ID, Rexburg, ID, Sun Valley, ID, Twin Falls, ID, Connersville/Liberty, IN, Washington, IN, Vincennes, IN, Richmond, IN, Jackson, WY, Butte, MT, Great Falls, MT, Missoula, MT, Sioux Falls, SD, and Appomattox, VA.

[13] *DigitalBridge Communications Launches Portable High-speed Internet Service in Rexburg, Idaho using Alvarion's 802.16e WiMAX Platform* (June 11, 2007) http://www.digitalbridgecommunications.com/tabid/88/Default.aspx.

it deployed the first, commercial mobile WiMAX system in the country. Four months later, DBC launched Voice over Internet Protocol service ("VoIP") over its WiMAX systems. Today, using DBC's demonstrated, repeatable and scalable community model, DBC provides fixed and mobile wireless broadband services, and wireless VoIP services, to over 22,000 subscribers. DBC is proud that its networks bring next-generation broadband capabilities to rural America first, "leapfrogging" technology that is not yet available to most urban consumers. DBC is proud to already partner with two of NRTC's members, bringing vital communications service to rural areas: Sioux Valley Energy, a Touchstone Energy Cooperative in Coleman, South Dakota, and Silverstar Telephone Co., Inc. in Boulder, Wyoming.

II. THE COMMISSION SHOULD ADOPT A CONCEPT OF BROADBAND THAT INCLUDES A NUMBER OF METRICS BEYOND SPEED.

In the *NOI*, the Commission asks how it should define broadband capability for purposes of a national plan, and whether rural regions, with inherently higher deployment costs, should have different definitions and standards for broadband than urban areas.[14]

In the collective view of DBC and NRTC, any definition of broadband should not set mandatory speeds that mandate a gold standard of service, and this is especially true for rural broadband. If the goal is to get broadband to the greatest number of people, then "great" could be the enemy of "good," if the Commission is not careful with definitions. For rural areas, the focus should be on the minimum speeds that will bring meaningful broadband to consumers that need it, and speeds that are realistic given the need to balance customer demands on the network, peak usage patterns, and system capacity. For most rural, unserved and underserved communities, there needs to be a realistic evaluation of what speed is fast enough, assuring that the greatest number of people are served with meaningful broadband at the lowest cost. Support for *appropriate* broadband

[14] *NOI* ¶¶ 15, 19.

solutions for rural communities was addressed in the Rural Broadband Strategy proceeding[15] in comments that were filed with the FCC by the California Emerging Technology Fund, Consumer Federation of America, Consumer's Union, DBC and NRTC.[16]

In general, DBC and NRTC urge the Commission to adopt a definition of broadband that includes many more metrics than speed. The focus of the Commission at this time needs to be broader than the highest possible speeds. Download speeds of at least 768 Kbps to 1 MB that are scalable and upgradeable without stranded investment or environmental upheaval would seem to provide a reasonable and achievable baseline target.[17] Exceptions to any speed requirements should, however, be recognized in cases where the only feasible broadband service is via two-way satellite, such as WildBlue, given current capabilities.[18]

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[15] *See,* Comments filed in response to *Comment Date Established for Report on Rural Broadband Strategy*, Public Notice, 24 FCC Rcd 2987 (2009).

[16] Comments of California Emerging Technology Fund, GN Docket 09-29 at 2 (March 25, 2009) ("Policies must allow each rural community to find broadband solutions that work. This requires: Technology solutions for their terrain and population distribution; Products and services appropriate for the residents and commercial establishments; and Local knowledge of existing infrastructure."); Comments of the Consumer Federation of American and Consumer Union, GN Docket 09-29 at 3 (March 25, 2009) ("With over 40 percent of households lacking broadband connectivity and as much as ten percent having no broadband service available, maximum coverage should be the goal, rather than chase a gold-platted [sic] network that will restrict the number of households that can be reached in the near future."); Comments of DBC, GN Docket 09-29 at 1 (March 25, 2009) ("[The Agencies should] [a]void setting mandatory 'speeds' for broadband. Require, instead, that broadband systems deployed in rural areas are 'future-proofed' and can easily adapt as technology improves. For rural areas there needs to be a realistic evaluation of what speed is fast enough, assuring that the greatest number of people are served with meaningful broadband at the lowest cost.") ("DBC Broadband Strategy Comments"); Comments of NRTC, GN Docket 09-29 at 9 (March 25, 2009) ("Agencies should avoid any hard-line data speed standards and any 'gold standard' level of service. Without question, the faster a service is the better. But in this case, great is the enemy of good. With millions of Americans lacking broadband, the goal should be to ensure access to [the] best reasonable level of service, given all circumstances.")

[17] Wireless broadband solutions are scalable and can be easily upgraded to include mobility or additional system capacity, enhancing performance of the system without the need to dig up streets and upset the environment. In fact, DBC has already upgraded some of its wireless systems to the newest generation WiMAX platform, doubling its operating capacity without having to change customer-premise or tower-mounted hardware. The standards-setting community anticipates that the WiMAX infrastructure deployed today, with modest network improvements, will be capable of reaching speeds exceeding 12 Mbps and system capacity will be increased fourfold without any stranded capital investment.

[18] As the Commission noted in its *Rural Broadband Strategy Report*: "[S]atellite broadband, with its near ubiquitous coverage and downstream data rates between 512 kbps and 5 Mbps, can provide a much-needed connection in rural areas, especially where other broadband solutions are not viable for technical or other reasons." Federal Communications Commission, *Bringing Broadband to Rural America, Report on a Rural Broadband Strategy* ¶ 112 (May 22, 2009) ("*Rural Broadband Strategy Report*").

In addition to the above factors, the Commission should consider that broadband needs to be affordable in order to be accessible, with pricing that can be sustained in order to encourage long-term adoption.[19] The Commission also should consider, as Congress has recognized, the importance of mobility in making broadband available anytime, anywhere for both urban and rural consumers.[20] In DBC's and NRTC's view, the Commission's concept of broadband might require different definitions and requirements for rural deployments, and should bring into consideration all of the above – reliability, sustainability, scalability, upgradeability, affordability, and mobility – and not just binary concepts of speed.

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[19] Six commenters in the Rural Broadband Strategy proceeding noted the importance of affordable service: *See*, Comments of DBC, GN Docket 09-29 at 8 (March 25, 2009) ("Wireless broadband projects that can extend meaningful broadband to the largest number of users in rural areas at the lowest cost and the fastest pace should be given a priority. As discussed above, DBC's WiMAX deployments service 20-50 times the number of households per network dollar spent versus comparable landline solutions."); Comments of NRTC, GN Docket 09-29 at 8 (March 25, 2009) ("In implementing the grant and/or loan processes at NTIA and RUS, NRTC urges that priority be given to grant applicants that demonstrate a clear and proven ability to deploy broadband services rapidly and on a least-cost basis, taking into consideration the capital costs to deploy (i.e., cost per home passed), CPE costs and monthly service fees."); Comments of WildBlue/Intelsat, GN Docket 09-29 at 2 (March 25, 2009) ("The unique advantage of satellite is that it is able to achieve [cost] efficiencies across a highly geographically dispersed subscriber base – an advantage that no other platform can replicate."); Comments of New America Foundation, GN Docket 09-29 at 6 (March 25, 2009) ("Affordable and nondiscriminatory access to high-speed middle-mile infrastructures and backbone transport is absolutely critical to promoting sustainable rural networks and allowing for these networks to scale-up in terms of speeds and services."); Comments of Consumer Federation of America and Consumers Union, GN Docket 09-29 at 8 (March 25, 2009) ("Making least cost the cornerstone of selecting projects, not only ensures that broadband will be provisioned efficiently; it also helps to ensure that the service will be affordable."); Comments of Windstream Communications, GN Docket 09-29 at 8 (March 25, 2009) ("Windstream has found that while its broadband rates are reasonable, many low-income consumers still cannot afford to purchase its high-speed service. Any meaningful rural broadband strategy must address the needs of such low-income consumers.").

[20] *See* J. Exp. Stat. at 149; Food, Conservation and Energy Act of 2008, Pub. L. 110-246, 122 Stat. 1651 (2008); *see also* Food, Conservation, and Energy Act of 2008, Conf. Rep. No. 110-627, at 834 (2008). "Conferees stated that the Secretary of Agriculture is expected to: consider the unique way of life in rural America and to be mindful that *mobile broadband technologies* are applicable to farmers, ranchers, and small rural business owners. *Fixed broadband service will continue to be important in rural homes and offices, but mobile technologies also may have a role to play in expanding broadband access to rural residents.* The Managers expect the Secretary to weigh all appropriate technologies, including the unique characteristics of mobile broadband service and technologies, during consideration of applications." DBC Broadband Strategy Comments at 5.

III. THE NATIONAL BROADBAND PLAN SHOULD SUPPORT WIRELESS BROADBAND AS ONE OF THE QUICKEST, MOST COST-EFFICIENT, MOST FUTURE-PROOFED SOLUTIONS FOR BRINGING QUALITY BROADBAND SERVICE TO RURAL AREAS; SATELLITE BROADBAND IS A VIABLE SOLUTION FOR THOSE NOT REACHED BY TERRESTRIAL SERVICE.

In the *NOI*, the Commission inquires about whether there are certain advanced broadband technologies that, if deployed, might better position the nation's broadband infrastructure for continued evolution.[21] The Commission asks which broadband technologies might work best and deliver the most effective, cost-efficient services in various parts of the nation.[22] The Commission also asks whether satellite technology, with comparatively limited bandwidth and higher latency, but potentially lower costs of deployment for rural regions, should be considered as a solution.[23]

To answer the question of which broadband technology might work best and deliver the most effective, cost-efficient services for rural and remote areas, the Commission need look no further than the comments filed in the Rural Broadband Strategy proceeding on March 25, 2009. A total of 116 comments were filed in that proceeding, and 78 of those comments offered considerable substance. One quarter of those commenters, 21 parties, advocated for the effectiveness of wireless broadband as a solution for bringing broadband to rural areas.[24]

Decades of experience in the communications industry leads NRTC and DBC management to the same conclusion: wireless broadband technology is the least expensive and most technologically advanced platform for bringing broadband service to rural and remote areas. The

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[21] *NOI* ¶ 16.

[22] *NOI* ¶ 38.

[23] *NOI* ¶ 19.

[24] *See* the comments of the American Petroleum Institute, the Benton Foundation, the Consumers Federation of America and Consumer's Union, CTIA, DigitalBridge Communications, General Communication, Inc., HaloWireless, HeirComm, Inc., M2Z Networks, MainStreet Broadband, the National Rural Electric Cooperative Association, New America Foundation, the National Rural Telecommunications Cooperative, Open Range Communications, PCIA, Qualcomm, Stephouse Networks, the Universal Service for America Coalition, Nick Slater, Verizon/ Verizon Wireless, and WISPA.

experience of DBC's management in evolving from wireline to wireless solutions, and the experience of numerous other carriers and equipment manufacturers worldwide, validates that wireless broadband affords the most expeditious, cost-efficient and future-proofed deployments for rural America.[25]

While each market is different and results may vary, DBC's experience in Appomattox, VA is an informative example of how attractive wireless broadband can be in unserved areas. DBC was able to deploy wireless broadband service to a portion of rural Appomattox County with a state grant that covered part of the network capital. It took three months to deploy service. Within one month, 10% of the covered households subscribed to the service. Within three months, the Appomattox system was cash-flow positive. After one year, 32% of the covered households subscribed to the service, and DBC now plans to expand coverage of its network to serve additional unserved areas of the county.

There are a number of reasons why wireless broadband networks are the most effective and efficient means of delivering broadband to rural areas. First, due to the simplicity of the architecture, wireless broadband systems can be quickly deployed in rural areas. DBC is able to launch most services in rural areas within 6-9 months. Compare this to cable or fiber deployment which often takes years to deploy in sparsely populated areas and may never reach the entire community.

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[25] Comments of Alvarion, Inc., Department of Commerce, NTIA, and Department of Agriculture, RUS, Joint Request for Information, Docket No. 090309298-9299-01 at I (April 13, 2009) ("Alvarion strongly urges NTIA and RUS to engage in a comparison of appropriate technologies and determine the most cost-efficient, future-proofed technology that can be deployed today in unserved, underserved, and rural markets. Alvarion believes this evaluation will reveal that WiMAX is an ideal technology to achieve the objectives set-out in the ARRA. WiMAX today enjoys broad market adoption with over 455 networks deployed in over 135 countries. WiMAX is a proven broadband technology that is commercially available now. Alvarion has deployed more than 250 commercial WiMAX technology solutions around the world. As a provider of innovative WiMAX, Alvarion firmly believes wireless broadband is the best technology to ensure that the *entire* country will enjoy the benefit of the most advanced, future-proofed, interoperable broadband technology available.")

Second, with all the right metrics, including access to affordable, licensed spectrum and access to affordable middle-mile backhaul, DBC is able to provide WiMAX services to the communities it serves for under $50 per household passed. DBC's WiMAX deployments are, therefore, capable of serving approximately 20-50 times the number of households per network dollar spent versus comparable landline solutions.[26]

Building on the advantages of WiMAX economics, DBC has developed a highly scalable network with a variable-cost-based back office platform that enables DBC to bring wireless broadband to rural communities nationwide at a fraction of the cost of traditional solutions. In very low household density areas, the costs of deploying fiber or cable solutions are enormous which has led to the digital divide we have today.

Third, using WiMAX technology and licensed spectrum, DBC is able to offer a reliable, sustainable, high-quality broadband service, with speeds exceeding 2 Mbps. In addition, unlike cable plant that is buried in the ground, wireless broadband solutions are future-proofed and can be easily upgraded to include mobility or additional system capacity, enhancing performance of the system without the need to dig up streets and upset the environment. In fact, DBC has already upgraded some of its wireless systems to the newest generation WiMAX platform, all without having to change or remove any hardware. The standards-setting community anticipates that the WiMAX infrastructure deployed today, with modest network improvements, will be capable of reaching speeds exceeding 12Mbps and system capacity will be increased fourfold without any stranded capital investment.[27]

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[26] *See* www.dailywireless.org/2008/08/20/fios-too-risky; *See also*, Light Reading, *Figuring Fios* (Sept. 27, 2006) http://www.lightreading.com/document.asp?doc_id=104753; Verizon, *What is Fios?* (May 2007) http://newscenter.verizon.com/kit/nxtcomm/Product-sheet-FiOS-1Q07.pdf.

[27] *See* WiMAX Forum, Requirements and Recommendations For Released I.X WiMAX Forum Air Interface, Version 1.8, www.wimaxforum.org/sites/wimaxforum.org/files/documentation/2009/080717_Rel1.x_Air_IF_Requirement.pdf.

For rural consumers who live or work beyond the reach of WiMAX, satellite broadband is a viable solution. NRTC members provide WildBlue's two-way satellite Internet service in remote areas with much success. WildBlue technology provides broadband Internet access to consumers lacking access to terrestrial networks. Operating at speeds of up to 1.5 Mbps downlink and 256 Kbps uplink,[28] WildBlue satellite broadband systems offer Internet connections that are typically five to ten times the speed of typical dial-up service. A 150 kilobyte webpage that takes more than 20 seconds to download via a 28Kbps dial-up connection loads in under 3 seconds on WildBlue.[29] People living on farms and ranches, in low-population and isolated areas, can access Internet services that most urban Americans take for granted as a part of their everyday lives such as e-mail, Web browsing, e-commerce, and other services that are difficult, if not virtually impossible, to use via a dial-up connection. Satellite broadband, with its ubiquitous coverage, reaches remote areas in the most cost-effective manner available. It is the *only* technology today that can provide reasonable broadband service to virtually every home and business in the United States. While satellite broadband may not be as fast as a terrestrial broadband service, it is without question a Godsend to WildBlue customers who have dial-up as their only alternative.

IV. CONTINUED FEDERAL FUNDING IS NEEDED TO HELP ENCOURAGE BROADBAND DEPLOYMENT TO THE NEEDIEST POPULATIONS AND THE MOST RURAL AREAS.

The Commission inquires in the *NOI* about whether it needs a better understanding of the relative costs of deploying different kinds of broadband networks to unserved and underserved areas.[30] DBC and NRTC can offer first-hand insight on this question. Without question, as discussed in Section III above, wireless broadband is the most cost-effective solution for deploying

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[28] WildBlue "Pro" is up to 1.5 Mbps down/256 Kbps up; "Select" is 1.0 Mbps down/200 Kbps up; and "Value" is 512 Kbps down/128 Kbps up.

[29] *See* speed demonstration at http://www.wildblue.com/aboutWildblue/speed_demo.jsp.

[30] *NOI* ¶ 38.

ubiquitous broadband, with costs that are 20-50 times below the cost of comparable landline solutions. (*See, supra* pp. 11-12.)

The Commission also asks in the *NOI* whether it should consider the broadband stimulus programs as part of the national broadband plan.[31] The broadband stimulus programs are, already, a critical part of the national broadband plan. However, in DBC's and NRTC's view, these funds may be just a start to ensure broadband for all. Since the breakdown of our economy last year, financing for rural broadband projects has been nearly impossible. But with the support of broadband stimulus funds, NRTC and DBC now have a plan to bring robust, affordable, reliable, sustainable, scalable and upgradeable wireless broadband services to the neediest communities across our nation. These deployments would not have been possible but for the availability of federal funds to defray the disproportionately high costs of deploying broadband in rural and sparsely populated areas.

As discussed above, rural Americans continue to lag behind urban and suburban consumers in broadband. The Pew Study reflects that 57 percent of urban residents have high-speed connections at home now and 60 percent of suburban residents have such connections, while only 38 percent of rural users now have broadband at home.[32] There is no question that the gap in America between the "served" -- in urban and suburban markets -- and the "unserved" or "underserved" in rural markets is financial. Rural America is handicapped due to the simple fact that widely dispersed populations cost a great deal to serve with broadband and the return on investment has not been sufficient to entice private investment. Stimulus funding, if properly awarded, will help to close the gap, but more must be done. More grants, more loans, and more continuing federal support subsidies for broadband will be needed.

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[31] *NOI* ¶ 62.

[32] Pew Study at p. 3.

In the *Rural Broadband Strategy Report* released by the Commission in May, the Commission discussed whether it should establish a Broadband Lifeline program to enhance access to broadband. DBC and NRTC support a Broadband Lifeline program. In the *Rural Broadband Strategy Report*, the Commission cited an NRTC subsidy project and noted that public and private entities "should consider programs, such as making computers or laptops available at a discount to qualifying households or discounting monthly service, designed to make broadband affordable to those with low incomes."[33] The NRTC subsidy program discussed by the Commission relates to WildBlue satellite service that is offered by NRTC members. Recognizing that satellite CPE costs can be a barrier to implementation, NRTC has a subsidized leasing program for its members to pass on to customers in their rural markets. WildBlue customers can now gain access to the service for just $99, which includes CPE and installation. Under this program, the actual CPE cost of $400 is subsidized by NRTC and its members. This subsidized program has been launched as a test to help expand access to broadband, but it may require continued federal financial assistance to be maintained. A Broadband Lifeline program that would support broadband service providers like NRTC members that take extra measures to help make sustainable and affordable broadband available, would be welcome and would encourage more programs like the NRTC/Wild Blue program.

In addition to implementing a Broadband Lifeline program, a national broadband plan should take a hard look at existing broadband loan and grant programs and determine a more appropriate mix of loans and grants, with more emphasis on grants than on loans and loan guarantees. For example, in the broadband stimulus programs that NTIA and RUS are preparing to administer, rural broadband projects to be funded by RUS are singled out for loans that must be repaid, while broadband projects for unserved and underserved areas will receive grants. In DBC's

[33] *See, Rural Broadband Strategy Report* ¶ 112.

and NRTC's view, both existing and future NTIA and RUS broadband programs should predominantly make grants available to fund rural broadband service. This recommendation also should apply to the $1.3 billion contained in the President's FY2010 budget for rural service.[34] Rural areas, more than unserved and underserved areas that are not rural, require cost-efficient business models to be successful and to be able to pass along the lowest-cost service to rural consumers. This can more easily occur if rural broadband projects are funded with grants and not loans. As the rural broadband statistics prove, more federal support for rural broadband projects is needed, and without this funding and support, projects to bring broadband to our most remote communities likely will not happen.

V. GIVEN THE ADVANTAGES OF WIRELESS BROADBAND FOR RURAL SERVICE, THE COMMISSION SHOULD CONSIDER AS PART OF THE NATIONAL BROADBAND PLAN WAYS IN WHICH IT CAN HELP ADVANCE WIRELESS BROADBAND DEPLOYMENTS BY: (A) QUICKLY MAKING MORE LICENSED SPECTRUM AVAILABLE FOR WIRELESS BROADBAND; AND (B) TAKING STEPS TO ENSURE THAT MIDDLE-MILE BACKHAUL IS AVAILABLE AND AFFORDABLE.

A. The National Broadband Plan Should Make It A Priority To Make Affordable Licensed Spectrum Available For Mobile Wireless Broadband Services for Rural Areas.

In the *NOI*, the Commission seeks comment on the extent to which access to spectrum may pose a constraint on broadband access and development.[35] As The Washington Post reported last year, DigitalBridge is having great success in rolling out advanced wireless broadband services in rural areas.[36] However, the most significant impediment to providing these needed services is the lack of available, affordable and suitable licensed spectrum. Wireless Communications Service

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[34] The President proposed $1.3 billion in loans and grants to "increase broadband capacity and improve telecommunications and education and health opportunities in rural America." President Obama's FY2010 Agriculture Department Budget, available at http://www.obpa.usda.gov/doc/USDAFY10.pdf.

[35] *NOI* ¶ 44.

[36] Zachary A. Goldfarb, *Surfing Roads Less Traveled; Ashburn Firm Makes WiMax a Reality in Small-Town America*, Washington Post, June 30, 2008, at D1.

("WCS") spectrum could fill this void, but final technical rules allowing mobility must be adopted.[37] The Commission must turn its attention to concluding the WCS/SDARS (Satellite Digital Audio Service ("SDARS")) rulemaking. This rulemaking has been pending at the Commission for nearly 12 years.[38]

The Commission should take note that making mobile wireless broadband technology available to rural communities is a priority of Congress. In a Congressional Joint Explanatory Statement regarding Section 6111 of the Farm Bill, conferees noted

> the unique way of life in rural America and . . . that *mobile broadband technologies* are applicable to farmers, ranchers, and small rural business owners. *Fixed broadband service will continue to be important in rural homes and offices, but mobile technologies also may have a role to play in expanding broadband access to rural residents.*[39]

DBC and NRTC wholeheartedly agree with the Farm Bill conferees – rural consumers need mobile broadband because of the way they live and work, many times untethered from traditional office environments. It is within the Commission's grasp to make ideal wireless broadband spectrum available for mobile broadband deployments in rural areas.[40] Commission inaction in the WCS/SDARS rulemaking has frustrated industry and Commission members alike. As Commissioner Adelstein noted when the XM – Sirius merger was approved, the Commission is standing in the way of rural broadband deployment:

> I am discouraged that the Commission has not yet decided the interference issues between the SDARS and Wireless Communications Service ("WCS") in the 2.3 GHz band. That these issues have been before the Commission for over a decade is completely unacceptable.... The longer we delay implementing rules governing the coexistence of SDARS and WCS, the longer we delay WCS rollout of critical wireless broadband services to rural, unserved and underserved areas. It is not enough to talk about rural broadband deployment. We need to

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[37] Educational Broadband Service ("EBS") and Broadband Radio Service ("BRS") spectrum at 2.5 GHz also could help fill the void. There is significant vacant spectrum in this band. However, there has been a freeze on applications for new EBS spectrum since 1995 and the last time BRS spectrum was made available through auction was 1996. Making vacant EBS and BRS spectrum available for broadband service also should be a priority.

[38] *See Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band*, Report and Order, Memorandum Opinion and Order and Further Notice of Proposed Rulemaking, 12 FCC Rcd 5754 (1997).

[39] *See* J. Exp. Stat. at 149; Food, Conservation and Energy Act of 2008, Pub. L. 110-246, 122 Stat. 1651 (2008) (*emphasis added*); *see also* Food, Conservation, and Energy Act of 2008, Conf. Rep. No. 110-627, at 834 (2008).

[40] Unlike other spectrum bands, WCS spectrum is otherwise unencumbered for wireless broadband deployments today. WCS spectrum covers large geographic areas and the transaction costs to use the spectrum are low compared to other bands that are available for wireless broadband – an important factor to ensuring cost-effective service in rural services.

> do something about it. Here, we are in fact standing in the way. We need to act, and do so in a way which promotes broadband and protects listeners of satellite radio. Today, I urge my colleagues to determine final technical rules so that WCS licensees can manufacture compliant equipment and devices.[41]

These comments were made by Commissioner Adelstein **eleven** months ago, and still the Commission has taken no action to free the WCS spectrum so that it can be used for mobile wireless broadband applications in rural areas. Given that the WCS/SDARS rulemaking has been pending for over a decade, with no solutions from industry, this is obviously not a matter the Commission can leave to industry to resolve, nor is it a matter the Commission can place on the back-burner in favor of other higher-profile matters. Consistent with the desire of Congress for mobile wireless broadband technology options for rural America, the Commission must take action, without delay, to make suitable spectrum available. Mobile WCS spectrum is needed before the first funding window opens for broadband grants and loans in the Summer of 2009.

In addition to WCS spectrum, DBC and NRTC urge the FCC to work with Congress to find a viable option for the 700 MHz D Block spectrum to facilitate the licensing and deployment of this spectrum in rural America, working in cooperation with the Public Safety Spectrum Trust. The 700 MHz spectrum would provide great propagation for rural markets, extending the reach of a WiMAX tower from approximately eight miles to as much as twenty miles. In addition, NRTC and DBC anticipate the near-term availability of WiMAX chipsets incorporating both 2.5 GHz and 700 MHz compatibility. Significant growth is expected with 700 MHz compatible equipment that will drive down the costs of infrastructure and consumer equipment.

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[41] *XM Radio, Inc.*, Order, 23 FCC Rcd 12327, Statement of Commissioner Adelstein (2008).

B. In Order to Ensure Affordable Broadband Service for Rural Consumers, A National Broadband Plan Should Ensure that Middle-Mile Backhaul for Rural Operations is Available and Affordable.

The national broadband plan should consider the importance of middle-mile backhaul and ensure that it is affordable and available for broadband services dedicated to rural and remote areas. The Commission has defined the middle-mile as facilities that provide relatively fast, large-capacity connections between the Internet backbone and last mile.[42] Middle-mile facilities can range from a few miles to a few hundred miles, especially in rural areas.[43] The middle-mile is typically constructed with fiber, but microwave and satellite links also can be used.

The lack of middle-mile infrastructure is one of the greatest obstacles to building sustainable rural broadband networks. The Commission quoted from DBC's comments in the *Rural Broadband Strategy Report*, when DBC noted that many middle-mile facilities were originally built by telephone and cable companies for ordinary telecommunications or cable television services.[44] Rural communities are often still reliant upon these antiquated copper telephone and cable infrastructures, which lack the capabilities to deliver high-speed, broadband access.[45] In examining the rapid decline of our national technological leadership, the New America Foundation found that:

> Without a substantial investment to bring adequate fiber connectivity to rural communities, an increase in the number of interconnection points and routes, and improved competition in the middle-mile, the U.S. broadband market and the sectors of the economy that rely upon it will continue to lag behind other industrialized nations. Competitive broadband networks will hit a wall in terms of speed and pricing as the capacity costs associated with increased traffic to the

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[42] *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996*, Third Notice of Inquiry, 16 FCC Rcd 15515 (2001).

[43] The typical rural ISP is 91 miles from its primary backbone Internet connection and faces considerable costs to transport traffic to and from the backbone. Benjamin Lennett & Sascha Meinrath, *Building a 21st Century Broadband Superhighway: A Concrete Build-out Plan to Bring High Speed Fiber to Every Community*, New America Foundation (January 2009) http://www.newamerica.net/publications/policy/building_21st_century_broadband_superhighway.

[44] *See, Rural Broadband Strategy Report*, n. 283.

[45] *Id.*

> backbone will grow faster than profits, forcing prices higher and limiting competition. The current nationwide economic decline is likely to further diminish private investment in telecommunications infrastructure, thereby creating conditions that increase the digital divide, inhibit competition, lessen our ability to gain parity with other advanced nations, and further hamper economic recovery and expansion.[46]

DBC has been able to bring cost-efficient and affordable wireless broadband to rural communities, but only where it has access to affordable middle-mile backhaul. When considering markets to serve, one of DBC's essential considerations is whether it can acquire middle-mile backhaul facilities at economic rates. In Idaho, for example, DBC partners closely with Syringa Networks, a cooperative fiber backhaul provider that serves many larger communities. Due to the capital efficiency of WiMAX deployments, DBC would be able to extend the reach of Syringa's fiber network into rural, unserved and underserved communities if more fiber is deployed to these areas. Additionally, if funds are made available so that more fiber huts that travel through these smaller communities are opened for interconnection, DBC would have even more opportunity to extend broadband services to more underserved towns.

DBC and NRTC also are of the view that in funding middle-mile backhaul projects with federal dollars, authorizing agencies should carefully weigh the association of such projects with a broadband project for last-mile access, thereby minimizing the prospects for stranded middle-mile investment. If middle-mile facilities are funded separately, a risk is run that middle-mile capabilities will be built to nowhere.

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[46] *See*, New America Foundation Comments, GN Docket 09-29 (March 25, 2009).

VI. CONCLUSION.

NRTC and DBC are committed to extending broadband opportunity to remote and rural populations. As the Commission rightly suggests, any national plan must "open the doors of opportunity for more Americans no matter who they are, [or] where they live . . ." The natural starting point of any national broadband plan must be to focus on the most in-need populations first, including rural America. NRTC and DBC have a plan to bring robust, affordable, reliable, sustainable, scalable and upgradeable wireless broadband services to some of the neediest communities across our nation, but as detailed in these comments, the continuing support of our government, financial and otherwise, is needed to make it happen.

Respectfully Submitted,

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CERTIFICATE OF SERVICE

I, Peter Andros, certify on this 8th day of June, 2009, a copy of the foregoing Comments has been served via electronic mail or first class mail, postage pre-paid, to the following:

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